Analysis Projects

No written reports for starred projects!

Thursday May 3, 16:30-17:50

1. **Maria, Maya, Melissa D.:** Schroeder-Bernstein Lemma (Exercise 1.4.13)
2. **Donald, Edgar, Karla:** Dirichlet's and Abel's Tests (Exercises 2.7.12-2.7.14)
3. **Liliana, Lorena, Viridiana:** Recursive sequences: Let a>0, and define $a_1 = a$, and for n>1, set $a_n=\sqrt{a + a_{n-1}}$. For what values of a will this sequence converge, and to what limit? Prove your conjecture.
4. **Claudia, Erica, Steven:** A comparison of the Root and Ratio tests*
5. Double Summation I (Exercises 2.8.1-2.8.4)
6. Double Summation II(Exercises 2.8.5-2.8.8)

Tuesday May 8, 16:00-18:45

7. **Angelica, Cindy, Mario:** Prove that every non-empty open set of real numbers is the union of at most countably many disjoint open intervals.
8. **Ana, Melissa B., Xavier:** Perfect Sets* (Section 3.4, 1st part)
9. **Abigail, Grisel, Jesus:** Connected Sets (Section 3.4, 2nd part)
10. Baire's Theorem (Section 3.5)
11. **Agamyrat, Alberto, Alejandro S.:** Sets of Discontinuity (Section 4.6)
12. The Euler-Mascheroni Constant
13. A Continuous Nowhere Differentiable Function (Section 5.4)
14. **Deborah, Miguel, Nallely:** Uniform Convergence I* (Section 6.2, pp. 154-157)
15. **Apolonia, Martha, Nathan:** Uniform Convergence II* (Section 6.2, pp. 157-160, including Theorem 6.2.6)
16. **Miriam, Sandra, Yadira:** The Cantor Function (Exercise 6.2.13)
17. Arzela-Ascoli Theorem (Exercises 6.2.15, 6.2.16)